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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,920	02/07/2005	Kazuhisa Mukai	MUKAI2	1923
1444 7590 01/15/2008 BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303			EXAMINER BARNHART, LORA ELIZABETH	
			ART UNIT 1651	PAPER NUMBER
			MAIL DATE 01/15/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/523,920

Applicant(s)

MUKAI ET AL.

Examiner

Lora E. Barnhart

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7, 10-14, 16-19 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 10-14, 16-19 and 21-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Amendments

Applicant's amendments filed 10/24/07 to claims 1-3, 6, 7, 10-13, and 16-18 have been entered. Claims 5, 8, 9, 15, and 20 have been cancelled. Claims 21-23 have been added. Claims 1-4, 6, 7, 10-14, 16-19, and 21-23 remain pending in the current application, all of which are being considered on their merits. Prior art references not included with this Office action can be found in a prior action.

Claim Objections

The objections to the claims are withdrawn in light of the claim amendments.

Claim Rejections - 35 USC § 112

Any rejections of record under 35 U.S.C. § 112, second paragraph, not particularly addressed below are withdrawn in light of the claim amendments.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 6, 7, 10-14, 16-19, and 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is drawn to a process that requires the addition of α -isomaltosyl glucosaccharide-forming enzyme (IGE) to L-ascorbic acid and α -glucosyl saccharide. The claim requires that the IGE have a particular activity (i.e., forming a saccharide with given properties from another saccharide) "without substantially increasing the reducing power of the reaction mixture," but this claim is confusing for several reasons. First, the

it is not clear whether the claimed method requires the recited activity of the enzyme, or whether an enzyme that possesses the recited activity under some other conditions would be encompassed by the claim. Furthermore, it is not clear which level of increase would be considered "substantial" and which would not. Finally, there is no antecedent basis for the term "the reducing power," and it is not clear what is being "reduced" in the method. Clarification is required.

Because claims 2-4, 6, 7, 10-14, 16-19, and 21-23 depend from indefinite claim 1 and do not clarify the point of confusion, they must also be rejected under 35 U.S.C. 112, second paragraph.

Claim 3 requires that "each of 5-O- α -glucopyranosyl-L-ascorbic acid and 6-O- α -glucopyranosyl-L-ascorbic acid [be] present in an amount of less than 0.1% (w/w)," but it is not clear where these compounds are present at this level. The claim does not require, e.g., that the reaction mixture contain the recited amounts of these compounds. Claims 11 and 18 suffer similar deficiencies. Clarification is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 7, 10-14, 16-19, and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al. (1992, U.S. Patent 5,137,723).

Yamamoto teaches mixing maltose and L-ascorbic acid (L-AA) into a single solution, then adding rat intestine α -glucosidase (RIAGase) to the solution to yield 2-O- α -D-glucopyranosyl-L-ascorbic acid (AA-2G; Experiment 2; column 9, line 8, through column 12, line 44). Yamamoto teaches that AA-2G may also be made using a method in which L-AA is combined with cyclodextrin in a solution to which is added cyclomaltodextrin glucanotransferase (CGTase; Examples A-1 and A-2, column 13, line 20, through column 14, line 34). Yamamoto teaches that the yield of AA-2G is enhanced by contacting the reaction product of Example A-2 with glucoamylase (Example A-3; column 14, lines 35-62). Yamamoto teaches recovering AA-2G by purification on gel permeation and cation exchange columns, drying AA-2G with a vacuum, and isolating >99% pure crystals of AA-2G (column 9, lines 28-43 and column 13, line 32, though column 14, line 62, for example). Yamamoto teaches conducting their method using any of several α -glucosyl saccharides (column 3, line 62, through column 4, line 3).

The RIAGase and CGTase of Yamamoto are both " α -isomaltosyl glucosaccharide-forming enzymes" in accordance with claims 1 and 8 in that they combine L-AA with α -glucosyl saccharides to yield AA-2G.

Claims 3, 11, and 18 are drawn to inherent properties of the reaction and are, therefore, implicitly taught by Yamamoto.

Applicant alleges that the RIAGase of Yamamoto does not have the enzymatic functions recited in claim 1 (Reply, page 11, paragraph 1). Applicant further alleges that the RIAGase of Yamamoto increases the reducing power of the reaction mixture (Reply,

page 11, paragraph 2). These arguments have been fully considered, but they are not persuasive.

As discussed in the rejections under 35 U.S.C. § 112, second paragraph, the limitations added to claim 1 in the instant amendment render the claim indefinite. In any case, applicant's arguments Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Specifically, applicant provides no evidence that the RIAGase of Yamamoto does not have the properties recited in claim 1. Applicant has not, e.g., referred to portions of Yamamoto by page and line number that distinguish the instant method from that of Yamamoto.

No claims are allowed. No claims are free of the art.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lora E. Barnhart whose telephone number is 571-272-1928. The examiner can normally be reached on Monday-Thursday, 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lora E Barnhart
Patent Examiner

